VALIDATA

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DATA VALIDATION SUMMARY
REPORT

COMPANY:	URS Corporation
SITE NAME:	SSFL - Chemical Soil Background Study
CONTRACTED LAB:	Columbia Analytical Services, Inc. – Kelso, Washington
PROJECT NUMBER:	29403634
QA/QC LEVEL:	Level IV
EPA SOW/METHOD:	EPA SW-846
VALIDATION GUIDELINES:	*USEPA Contract Laboratory Program National Functional Guidelines for Organic Superfund Data Review,* 2008*, USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review,* 2010
SAMPLE MATRICES:	Soil & Water
TYPES OF ANALYSES:	Semivolatile Organics (SVOA), Polynuclear Aromatic Hydrocarbons (PAH), Pesticides (Pest.), Herbicides (Herb.), Formaldehyde (Form.), Alcohols, Perchlorate, Metals, Hexavalent Chromium (Hex. Cr), Fluoride, Nitrite, Nitrate+Nitrite, Nitrate, Cyanide (CN)
SDG NUMBER:	K1110641

OVERVIEW

SAMPLES:

Client Sample #	Lab Sample #	Matrix	SVOA	PAH	Pest.	Herb.
CZBS0039S005	K1110641-001	Soil	X	X	X	X

Client Sample #	Lab Sample #	Matrix	Alcohols	Form	Perchlorate	Metals
CZBS0039S005	K1110641-001	Soil	X	X	X	X

CZBS0005S035	K1110641-002	Soil	X	X	X	X
TBQW00024	K1110641-003	Water	X			
CZBS0039S005MS	K1110641-001MS	Soil	X			
Client Sample #	Lab Sample #	Matrix	Alcohols	Form	Perchlorate	Metals
CZBS0039S005MSD	K110641-001MSD	Soil	X			
CZBS0005S035MS	K1110641-002MS	Soil			X	
CZBS0005S035MSD	K1110641-002MSD	Soil			X	
TBQW00024MS	K1110641-003MS	Water	X			
TBQW00024MSD	K1110641-003MSD	Water	X			

Client Sample #	Lab Sample #	Matrix	Hex Cr	Fluoride	Nitrite	Nitrate + Nitrate
CZBS0039S005	K1110641-001	Soil	X	X	X	X
CZBS0005S035	K1110641-002	Soil	X	X	X	X
CZBS0039S005MD	K1110641-001MD	Soil			X	X
CZBS0039S005MS	K1110641-001MS	Soil	X			X
CZBS0039S005MSD	K110641-001MSD	Soil	X			X

Client Sample #	Lab Sample #	Matrix	Nitrate	Cyanide
CZBS0039S005	K1110641-001	Soil	X	X
CZBS0005S035	K1110641-002	Soil	X	X

*All metals were analyzed by ICP, ICP-MS, and CVAA (Mercury)

SUFFIX CODES: D = FIELD DUPLICATE, DL = DILUTION, MD = MATRIX DUPLICATE, MS = MATRIX SPIKE, MSD = MATRIX SPIKE DUPLICATE
RE = REANALYSIS

DATA REVIEWERS: Carla Butler, Amy L. Hogan, Kevin C. Harmon, Diana Levy

RELEASE SIGNATURE: Digitally signed by: Diana Levy
Date: 2012.03.28

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Data Qualifier Definitions

J	-	The associated numerical value is an estimated quantity.
J+	-	The associated numerical value is an estimated quantity, potentially biased high.
J-	-	The associated numerical value is an estimated quantity, potentially biased low.
R	-	The data are unusable (the compound/analyte may or may not be present). Resampling and reanalysis are necessary for verification.
U	-	The compound/analyte was analyzed for, but not detected. The associated numerical value is the sample quantitation limit.
UJ	-	The compound/analyte was analyzed for, but not detected. The sample quantitation limit is an estimated quantity.

Protocol Qualifier Classification: The data point was outside the analytical method, data validation guidelines or project specific limits.

Advisory Qualifier Classification: The data point was qualified based on professional judgement of the validator.

Note: All qualifiers applied to the data in all analytical fractions are considered Protocol Qualifier Classification unless specifically noted as Advisory.

REASON CODE DEFINITIONS
URS Santa Susana Field Laboratory

a Analytical sequence deficiency or omission.
b Gross compound breakdown (4,4'-DDT/Endrin).
c Calibration failure; poor or unstable response.
d Laboratory duplicate imprecision.
e Laboratory duplicate control sample imprecision.
f Field duplicate imprecision.
g Poor chromatography.
h Holding time violation.
i Internal standard failure.
j Poor mass spectrographic performance.
k Serial dilution imprecision.
l Laboratory control sample recovery failure.
m Matrix spike/matrix spike duplicate recovery failure.
n Interference check sample recovery failure.
o Calibration blank contamination (metals/inorganics only).
p Preparation blank contamination (metals/inorganics only).
q Quantitation outside linear range.
r Linearity failure in initial calibration.
s Surrogate spike recovery failure
(GC organics and GC/MS organics only).
t Instrument tuning failure.
u No valid confirmation column (GC Organics only).
v Value is estimated below the MDA (Rads only).
w Retention time (RT) outside of RT window.
x Field blank contamination.
y Trip blank contamination.
z Method blank contamination.

DATA QUALIFICATION SUMMARY

Columbia Analytical Services, Inc. – K1110641 - Organics & Inorganics

SAMPLES: CZBS0039S005, CZBS0005S005, TBQW00024

SEMIVOLATILE ORGANICS

SUMMARY

I.) General:

The analyses for Semivolatile Organics (phthalate compounds only) were performed using GC/MS according to SW-846 Method 8270C.

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no Major Issues associated with this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) GC / MS Tuning:

All GC / MS Tuning criteria were met. No action was required.

III.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No action was required.

Continuing Calibration:

All Continuing Calibration criteria were met. No action was required.

IV.) Blanks:

Method Blanks:

There were no detections in the method blank associated with this SDG. No action was required.

Equipment Rinsate Blank:

No equipment rinsate blank was provided for this SDG. No action was required.

TICs:

TIC data were not submitted for this fraction of the SDG. No action was required.

V.) Surrogate Recoveries:

All Surrogate Recovery criteria were met. No action was required.

VI.) Laboratory Control Samples (LCS):

LCS:

One LCS/LCSD pair was analyzed by the laboratory for this fraction. All criteria were met. No action was required.

Reporting Limit LCS (RL LCS):

Lab Fortified Blanks (LFBs) KWG1110957-1 and KWG1110957-6 met all RL LCS criteria. No action was required.

VII.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

No MS/MSD analyses were performed on samples for this fraction. No action was required.

VIII.) Field Duplicates:

No field duplicate samples were identified for this fraction of the SDG. No action was required.

IX.) Internal Standards Performance (ISTD):

All ISTD criteria were met. No action was required.

X.) TCL Compound Identification:

All TCL Compound Identification criteria were met. No action was required.

XI.) Compound Quantitation and Reported Contract Required Quantitation Limits (CRQL):

All CRQL criteria were met. No action was required.

XII.) System Performance:

All System Performance criteria were met. No action was required.

POLYNUCLEAR AROMATIC HYDROCARBONS (PAH)

SUMMARY

I.) General:

The analyses for Polynuclear Aromatic Hydrocarbons were performed using GC/MS according to SW-846 Method 8270D-SIM. The detection limit was elevated for benzo(a)pyrene in sample CZBS0039S005 due to matrix interference. The presence of non-target background components in the chromatogram prevented adequate resolution at normal limits.

All laboratory data were acceptable with qualification.

MAJOR ISSUES

There were no Major Issues associated with this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) GC / MS Tuning:

All GC / MS Tuning criteria were met. No action was required.

III.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No action was required.

Continuing Calibration:

All Continuing Calibration criteria were met. No action was required.

IV.) Blanks:

Method Blanks:

The following compounds were detected in method blank KWG1110956-4:

naphthalene	0.12 ug/kg
2-methylnaphthalene	0.056 ug/kg
fluoranthene	0.084 ug/kg
pyrene	0.036 ug/kg

The positive results for these compounds in sample CZBS0039S005, which were less than the CRQL, were flagged as undetected (U) with the result being raised to the CRQL.

Equipment Rinsate Blank:

No equipment rinsate blank was provided for this SDG. No action was required.

TICs:

TIC data were not submitted for this fraction of the SDG. No action was required.

V.) Surrogate Recoveries:

All Surrogate Recovery criteria were met. No action was required.

VI.) Laboratory Control Samples (LCS):

LCS:

One LCS/LCSD pair was analyzed by the laboratory for this fraction. All criteria were met. No action was required.

Reporting Limit LCS (RL LCS):

Lab Fortified Blank (LFB) KWG1110956-1 met all RL LCS criteria. No action was required.

VII.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

No MS/MSD analyses were performed on samples for this fraction. No action was required.

VIII.) Field Duplicates:

No field duplicate samples were identified for this fraction of the SDG. No action was required.

IX.) Internal Standards Performance (ISTD):

All ISTD criteria were met. No action was required.

X.) TCL Compound Identification:

All TCL Compound Identification criteria were met. No action was required.

XI.) Compound Quantitation and Reported Contract Required Quantitation Limits (CRQL):

Benzo(a)pyrene was non-detect at a reporting limit of 4.1 ug/kg in SDG sample CZBS0039S005, which was above the CRQL limit of 1.7 ug/kg. The presence of non-target background components in the chromatogram prevented adequate resolution for benzo(a)pyrene at the normal limit. No action was required.

XII.) System Performance:

All System Performance criteria were met. No action was required.

PESTICIDES

SUMMARY

I.) General:

The analyses for Pesticides were performed using GC according to SW-846 Method 8081A. Reporting limits were elevated for twelve compounds for sample CZBS0039S005 due to matrix interference. The presence of non-target background components in the chromatogram prevented adequate resolution at normal limits for the compounds flagged (i) by the laboratory. The normal reporting limits for all compounds exceeded the CRQL.

All laboratory data were acceptable with qualification.

MAJOR ISSUES

There were no Major Problems with this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Instrument Performance:

All Instrument Performance criteria were met. No action was required.

III.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No action was required.

Second Source Calibration:

For the ICV standards run on 9/29/11, the Percent Difference (%D) for endrin ketone on the confirmation column DB XLB was 22%, which was slightly above the upper QC limit of 20%. The ICV results were reported from column DB-35MS that had acceptable results. No action was required.

Continuing Calibration:

All Continuing Calibration criteria were met. No action was required.

IV.) Blanks:

Method Blanks:

There were no detections in the method blank associated with this fraction of the SDG. No action was required.

Equipment Rinsate Blank and Field Blank:

There were no equipment rinsate blanks or field blanks associated with this fraction of the SDG.

No action was required.

V.) Surrogate Recoveries:

All Surrogate Recovery criteria were met. No action was required.

VI.) Laboratory Control Samples (LCS):

LCS:

One LCS/LCSD pair was analyzed by the laboratory for this SDG. All LCS criteria were met. No action was required.

Reporting Limit LCS (RL LCS):

The RL LCS sample submitted for this fraction detected all compounds although the true values were greater than the CRQL values. No action was required.

VII.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

No MS/MSD analyses were performed for this SDG fraction. No action was required.

VIII.) Field Duplicates:

No field duplicate samples were identified for this fraction of the SDG. No action was required.

IX.) TCL Compound Identification:

The data user should be advised that where compounds were detected, the lab reported the lower result between the two columns where no matrix interference was observed.

Only those results above the reporting limit were reviewed for column percent difference.

Sample	Compound	%D
CZBS0039S005	4,4'-DDE	0%
	4,4'-DDT	97%

The result for 4,4'-DDT for sample CZBS0039S005 was flagged as estimated (J) because the %D was greater than 25%.

HERBICIDES

SUMMARY

I.) General:

The analyses for Herbicides were performed using GC according to SW-846 Method 8151A. The detection limit for MCPP for sample CZBS0039S005 was elevated due to matrix interference. The presence of non-target background components in the chromatogram prevented adequate resolution at normal limits. All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no Major Problems with this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Instrument Performance:

All Instrument Performance criteria were met. No action was required.

III.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No action was required.

Continuing Calibration:

All Continuing Calibration criteria were met. No action was required.

IV.) Blanks:

Method Blanks:

There were no detections in the method blanks associated with this fraction of the SDG. No action was required.

Equipment Rinsate Blank and Field Blank:

There were no equipment rinsate blanks or field blanks associated with this fraction of the SDG. No action was required.

V.) Surrogate Recoveries:

All Surrogate Recovery criteria were met. No action was required.

VI.) Laboratory Control Samples (LCS):

LCS:

One LCS/LCSD pair was analyzed by the laboratory for this SDG. All LCS criteria were met. No action was required.

Reporting Limit LCS (RL LCS):

The RL LCS sample submitted for this fraction detected all compounds. No action was required.

VII.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

No MS/MSD analyses were performed for this SDG fraction. No action was required.

VIII.) Field Duplicates:

No field duplicate samples were identified for this fraction of the SDG. No action was required.

IX.) TCL Compound Identification:

The data user should be advised that where compounds were detected, the lab reported the lower result between the two columns where no evidence of matrix interference was observed.

Only those results above the reporting limit were reviewed for column percent difference. Since no results were above the reporting limits, no action was required.

ALCOHOLS

SUMMARY

I.) General:

The analyses for Methanol and Ethanol were performed using GC according to SW-846 Method 8015B.

All laboratory data were acceptable without qualifications.

MAJOR ISSUES

There were no Major Problems with this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Times criteria were met. No action was required.

II.) Instrument Performance:

All Instrument Performance criteria were met. No action was required.

III.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No action was required.

Continuing Calibration:

All Continuing Calibration criteria were met. No action was required.

IV.) Blanks:

Method Blanks:

There were no detections in the method blanks associated with this fraction of the SDG. No action was required.

Trip Blank:

There were no detections in the trip blank associated with this fraction of the SDG. No action was required.

V.) Surrogate Recoveries:

All Surrogate recoveries criteria were met. No action was required.

VI.) Laboratory Control Samples (LCS):

Two LCS samples (one for soil and one for water) were analyzed by the laboratory for this SDG. All LCS criteria were met. No action was required.

VII.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD analyses were performed on SDG sample CZBS0039S055 for the soil matrix and TBQW00024 was submitted for the water matrix. All MS / MSD criteria were met, so no action was required.

VIII.) Field Duplicates:

There were no field duplicate samples identified for this fraction of the SDG. No action was required.

IX.) TCL Compound Identification:

All Compound Identification criteria were met. No action was required.

FORMALDEHYDE

SUMMARY

I.) General:

The analyses for Formaldehyde were performed using GC according to SW-846 Method 8315A.

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no Major Problems with this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Instrument Performance:

All Instrument Performance criteria were met. No action was required.

III.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No action was required.

Continuing Calibration:

All Continuing Calibration criteria were met. No action was required.

IV.) Blanks:

Method Blanks:

There were no detections in the method blank associated with this fraction of the SDG. No action was required.

V.) Surrogate Recoveries:

The addition of Surrogate Compounds was not utilized by the laboratory for this fraction of the SDG. Since the method for this analysis does not specify that Surrogate compounds are required, the validator determined that data qualification was not necessary.

VI.) Laboratory Control Samples (LCS):

LCS:

One LCS was analyzed for this fraction of the SDG. All LCS criteria were met. No action was required.

Reporting Limit LCS (RL LCS):

An RL LCS was not submitted for this fraction of the SDG. No action was required.

VII.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD analyses were performed on a client sample from SDG K1110689. All MS / MSD criteria were met. No action was required.

VIII.) Field Duplicates:

There were no field duplicate samples identified for this fraction of the SDG. No action was required.

IX.) TCL Compound Identification:

All Compound Identification criteria were met. No action was required.

PERCHLORATE

SUMMARY

I.) General:

The analyses for Perchlorate were performed using HPLC/MS/MS according to SW-846 Method 6850.

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no Major Problems with this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Instrument Performance:

All Instrument Performance criteria were met. No action was required.

III.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No action was required.

Continuing Calibration:

All Continuing Calibration criteria were met. No action was required.

IV.) Blanks:

Method Blanks:

There were no detections in the method blank associated with this fraction of the SDG. No action was required.

VI.) Laboratory Control Samples (LCS):

LCS:

One LCS / LCSD set was analyzed by the laboratory for this SDG. All LCS criteria were met. No action was required.

Reporting Limit LCS (RL LCS):

An RL LCS was not submitted for this fraction of the SDG. No action was required.

VII.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD analyses were performed on SDG sample CZBS005S035. All criteria were met. No action was required.

VIII.) Internal Standards Performance:

All ISTD criteria were met. No action was required.

VIII.) Field Duplicates:

There were no field duplicate samples identified for this fraction of the SDG. No action was required.

IX.) TCL Compound Identification:

All Compound Identification criteria were met. No action was required.

TOTAL METALS

SUMMARY

I.) General:

Aluminum, barium, boron, calcium, lithium, magnesium, manganese, phosphorus, potassium, sodium, strontium, tin, titanium, and zinc were analyzed by Inductively Coupled Plasma (ICP) according EPA method 6010B. Antimony, arsenic, cadmium, chromium, cobalt, copper, lead, molybdenum, nickel, selenium, silver, thallium, vanadium, and zirconium were analyzed by ICP-Mass Spectrometry (ICP-MS) according to EPA method 6020. Mercury was analyzed by cold vapor atomic absorption (CVAA) according to EPA method 7470A for aqueous samples and 7471A for soil samples.

Matrix Spike/Matrix Spike duplicate, Duplicate, and Serial Dilution results were taken from a separate client SDGs.

All laboratory data were acceptable with qualification.

MAJOR ISSUES:

There were no Major Issues with this fraction of the SDG.

MINOR ISSUES:

I.) Holding Times and Preservation:

All Holding Time and preservation criteria were met. No action was required.

II.) Calibration:

All Initial and Continuing Calibration criteria were met. No action was required.

III.) Blanks:

Preparation Blanks:

The following detections were reported for the preparation blank associated with the SDG soil

samples:

Blank	Matrix	Analyte	Result
K1110641MB	Soil	aluminum	0.70 mg/kg
		antimony	0.013 mg/kg
		barium	0.08 mg/kg
		cadmium	0.009 mg/kg
		calcium	2.4 mg/kg
		chromium	0.08 mg/kg
		cobalt	0.010 mg/kg
		lead	0.022 mg/kg
		manganese	0.04 mg/kg
		molybdenum	0.03 mg/kg
		nickel	0.06 mg/kg
		thallium	0.017 mg/kg

The results for antimony in SDG sample CZBS0039S005 was flagged as undetected (U) and the results was raised to the soil CRQL due to the preparation blank result greater than the MDL and sample result less than the soil CRQL.

All other detected soil sample results were greater than 10X the blank contamination, so no further action was required.

Calibration Blanks:

The following detections were the highest reported values for the calibration blanks associated with the SDG soil samples:

Blank	Analyte	Result
ICB	barium	0.90 ug/L
	molybdenum	0.04 ug/L
CCB2	aluminum	-3.4 ug/L
	antimony	-0.097 ug/L
	cobalt	0.009 ug/L
	lead	0.014 ug/L
	mercury	-0.16 ug/L
	nickel	0.06 ug/L
	strontium	0.10 ug/L
	thallium	0.011 ug/L
CCB3	calcium	10.3 ug/L
	manganese	-0.20 ug/L
CCB4	boron	3.0 ug/L

The results for boron in both SDG samples, which were less than the CRQL, were flagged as undetected (U) with the results being raised to the CRQL.

The positive result for antimony in SDG sample CZBS0005S035 and the positive results for mercury in both SDG samples was flagged as estimated biased low (J-) since the sample result was less than 10X the CRQL and the negative blank value.

All detected sample results in the remaining analytes were greater than 5X the blank contamination, so no further action was required.

IV.) Interference Check Standards:

The following non-spiked analytes were detected in the ICSA or ICSAB samples at levels above the method detection limit (MDL) for the soil analytes:

Analyte	MDL	Result
antimony	0.018 ug/L	0.2 ug/L
barium	0.3 ug/L	2.0 ug/L
boron	2.0 ug/L	3.0 ug/L
cadmium	0.008 ug/L	0.1 ug/L
chromium	0.03 ug/L	0.04 ug/L
cobalt	0.002 ug/L	0.7 ug/L
copper	0.16 ug/L	0.6 ug/L
lead	0.01 ug/L	0.1 ug/L
lithium	2.5 ug/L	10 ug/L
manganese	0.1 ug/L	-3.0 ug/L
molybdenum	0.04 ug/L	49.2 ug/L
nickel	0.04 ug/L	2.7 ug/L
phosphorus	15.0 ug/L	90 ug/L
selenium	0.4 ug/L	1.2 ug/L
sodium	20 ug/L	49 ug/L
titanium	0.3 ug/L	2.0 ug/L
vanadium	0.04 ug/L	-0.1 ug/L
zirconium	0.04 ug/L	0.1 ug/L

All sample results were >10X the analyte MDL and significantly greater than the ICS results, so no action was taken.

The ICSAB recovery criteria were met for soil analyses. No action was required.

V.) Laboratory Control Samples (LCS):

All LCS Recovery and LCSD duplicate precision criteria were met. No action was necessary. All aqueous LCS Recovery criteria were met. No action was necessary.

Reporting Limit LCS (RL LCS):

The RL LCS had detected results for all target analytes in this fraction, and was therefore acceptable. No action was required.

VI.) Duplicate Sample Analysis:

MD analyses were performed on client samples CZBS0045S055 and CZBS0079S005 from separate client SDGs. All duplicate criteria were met and no action was taken.

VII.) Matrix Spike / Matrix Spike Duplicate (MS/MSD):

MS / MSD analyses were performed on client samples CZBS0045S055 and CZBS0079S005 from separate client SDGs. The following %R's were outside the 75-125% QC limits.

MS/MSD Sample	Analyte	%R
CZBS0045S055MS	antimony	29.8
CZBS0045S055MSD	antimony	27.5
CZBS0045S055MSD	manganese	57.7

All Post spike criteria were. The positive and non-detect results for antimony and manganese in the SDG samples were flagged as estimated (J) and (UJ).

VIII.) Serial Dilution:

All ICP serial dilution criteria were met, so no action was taken.

X.) Field Duplicates:

There were no field duplicates associated with this SDG. No action was required.

XI.) Instrument QC data:

Instrument verification (ICP-MS Tune) test criteria were met. No action was required.

Method 6020 suggests but does not require that every analyte have an internal standard that is within 50 atomic mass units (amu) from the quantitation isotope amu. Several of the analytes of interest for the ICP-MS had associated Internal Standards with an amu difference of greater than

50. The laboratory indicated this was done to minimize interferences. Because the method guidance is not mandatory and other quality control indicators demonstrate the analyses were in control, in the professional judgment of the validator, no data qualification was necessary

XII.) Compound Identification:

Compound Identification criteria were met. No action was required.

HEXAVALENT CHROMIUM

SUMMARY

I.) General:

The analyses for hexavalent chromium were performed using ion chromatography according to EPA Method 7196A.

The results for hexavalent chromium in the SDG samples, which consisted entirely of non-detects, were rejected (R) based on extremely low MS / MSD recoveries.

MAJOR ISSUES:

I.) Matrix Spike / Matrix Spike Duplicate (MS/MSD):

MS / MSD analyses were performed on sample CZBS0039S005. The Percent Recoveries (%Rs) were 0% for both samples, which were below the 75-125% QC limits. A Post digestion spike was analyzed with a 68% recovery, which is below the 75-125% QC limits. Based on the failure of both the MS / MSD analyses and the post spike analyses, all samples results for hexavalent chromium in the SDG samples, which consisted entirely of non-detects, were rejected (R).

MINOR ISSUES:

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

All Initial and Continuing Calibration criteria were met. No action was required.

III.) Blanks:

There were no detections reported in the blanks associated with this data set. No action was required.

IV.) Laboratory Control Samples (LCS):

All LCS Recovery criteria were met. No action was necessary.

V.) Duplicate Sample Analysis:

MD analysis was performed on sample CZBS0039S005. All duplicate criteria were met and no action was taken.

VI.) Matrix Spike / Matrix Spike Duplicate (MS/MSD):

Please see the Major Issues section for this fraction the SDG.

VII.) Field Duplicates:

There were no field duplicates associated with this SDG. No action was required.

VIII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No action was required.

FLUORIDE

SUMMARY

I.) General:

The analyses for fluoride were performed by ion chromatography according to SW 846 Method 9056.

It was noted by the validator that the Form I for this fraction incorrectly lists the extraction date for all SDG samples as 11/16/11. Upon verification of the raw data, the validator determined that the correct extraction date was 11/15/11 and lined through the incorrect date and made a notation documenting the correct extraction date.

All laboratory data were acceptable with qualifications.

MAJOR ISSUES

There were no major problems for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

All Calibration criteria were met. No action was required.

III.) Blanks:

Fluoride was detected at 0.2 mg/kg in continuing calibration blank CCB2. The result for fluoride in SDG sample CZBS0039S005, which was below the CRQL, was flagged as undetected (U) with the results being raised to the CRQL.

IV.) Laboratory Control Samples (LCS):

All LCS Recovery and LCSD duplicate precision criteria were met. No action was necessary.

V.) Duplicate Sample Analysis:

MD analyses data were not submitted for this fraction of the SDG. All positive and non-detect sample results were flagged as estimated (J) and (UJ).

VI.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD analyses data were not submitted for this fraction of the SDG. All positive and non-detect sample results were flagged as estimated (J) and (UJ).

VII.) Field Duplicates:

There were no field duplicates associated with this SDG. No action was required.

VIII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No action was required.

NITRITE

SUMMARY

I.) General:

The analyses for nitrite were performed by ion chromatography according to EPA Method 353.2.

All laboratory data were acceptable with qualifications.

MAJOR ISSUES

There were no major problems for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

The 51 hours between sample collection and sample extraction for SDG sample CZBS0039S005 exceeded the 48 hour QC limit. The non-detect result for this sample was flagged as estimated (UJ).

II.) Calibration:

All Calibration criteria were met. No action was required.

III.) Blanks:

Nitrite was detected at 0.09 mg/kg in method blank K1110641-MB1. The results for nitrite in the SDG samples, which were less than the CRQL, were flagged as undetected (U) with the result being raised to the CRQL.

IV.) Laboratory Control Samples (LCS):

All LCS Recovery and LCSD duplicate precision criteria were met. No action was necessary.

V.) Duplicate Sample Analysis:

MD analyses were performed on SDG sample CZBS0039S005. All Duplicate Sample Analysis criteria were met. No action was required.

VI.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS analysis data was not submitted for this fraction of the SDG. All positive and non-detect results for this fraction of the SDG were flagged as estimated (J) and (UJ).

VII.) Field Duplicates:

There were no field duplicates associated with this SDG. No action was required.

VIII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No action was required.

NITRATE + NITRITE

SUMMARY

I.) General:

The analyses for nitrate + nitrite were performed by ion chromatography according to EPA Method 353.2.

All laboratory data were acceptable without qualifications.

MAJOR ISSUES

There were no major problems for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

All Calibration criteria were met. No action was required.

III.) Blanks:

Nitrate + Nitrite was detected at 0.10 mg/kg in method blank K1110641-MB. Since the SDG sample results were greater than the CRQL, no action was required.

IV.) Laboratory Control Samples (LCS):

All LCS Recovery and LCSD duplicate precision criteria were met. No action was necessary.

V.) Duplicate Sample Analysis:

MD analyses were performed on SDG sample CZBS0039S005. All Duplicate Sample Analysis criteria were met. No action was required.

VI.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS analysis was performed on SDG sample CZBS0039S005. All MS criteria were met. No action was required.

VII.) Field Duplicates:

There were no field duplicates associated with this SDG. No action was required.

VIII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No action was required.

NITRATE

SUMMARY

I.) General:

The analyses for nitrate were performed by ion chromatography according to EPA Method 353.2.

All laboratory data were acceptable with qualifications.

The results for nitrate were reported by subtracting the nitrite results from the nitrate +nitrite results generated by the laboratory. The calculations were verified by the validator and it was determined that the reported results for nitrate correct. It was noted that the nitrite results were qualified as undetected based on calibration blank contamination. The user of the data should be aware of this in assessing the calculated values for nitrate. Since the nitrite result for sample CZBS0039S005 was qualified as estimated based on holding time criteria, it was determined by the validator that the result for nitrate in this sample should be qualified as estimated (J).

CYANIDE

SUMMARY

I.) General:

The analyses for cyanide were performed according to EPA Method 9012A.

All laboratory data were acceptable without qualifications.

MAJOR ISSUES

There were no major problems for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

All Calibration criteria were met. No action was required.

III.) Blanks:

There were no detections in the blanks associated with this SDG. No action was required.

IV.) Laboratory Control Samples (LCS):

One LCS was analyzed for this fraction of the SDG. All LCS criteria were met. No action was necessary.

V.) Duplicate Sample Analysis:

Batch MD analyses were submitted for a client sample form SDG K1110467. The RPD exceeded the QC limit, but was not considered meaningful since the sample result was well below the CRQL. No action was required.

VI.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

Batch MS / MSD data were submitted for a client sample from SDG K1110467. All MS / MSD criteria were met. No action was required.

VII.) Field Duplicates:

There were no field duplicates associated with this SDG. No action was required.

VIII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No action was required.